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Title: An overview of the process for pre-launch checkout and transition activities in support of the International Space Station (ISS) Payload Operations Integration Center.

The objective of this paper is to provide future ISS scientists and/or engineers with an overview of the coordination process for the preparation and implementation of the pre-launch checkout and transition activities as observed from the Marshall Control Flight Center (MSFC) Payload Operations Integration Center perspective. This includes 4 major phases:

- 1) Verification and validation of the new command and telemetry databases that are needed for new payload experiments and new onboard formats.
- 2) Integration testing of the new ground control software and hardware.
- 3) Final internal and external pre-launch checkouts with cadre and experiment teams.
- 4) Performance of the actual synchronized transition between MSFC, Johnson Space Center (JSC), and ISS onboard configuration to new onboard software, ground software, and databases.

Each flight requires new command and telemetry databases to accommodate changes in the payload complement onboard as well as changes in the onboard configurations and formats. These are verified against the ground system software and are validated via simulations and tests.

The ground control software and hardware is continually being upgraded and improved at both centers, which requires testing internally, with other centers, and with remote payload users. There is a sequence of tests that must be done to verify the integration of the hardware, software, and the interfaces between centers and users.

After the verification and validation is complete, the final pre-launch configuration begins. This configuration requires extensive coordination between Payload Operations Integration Center support personnel, the cadre, the remote payload users, and other centers. Once the configuration is in place a transition timeline checklist is used to confirm that required capabilities are verified prior to the actual transition to new products.